Hand & Wrist

Dupuytren's Contracture
- Progressive fibrosis of palmar fascia → progress to nodules → fingers stuck in flexion
- Idio, benign, can't stop, 70% M
- Risk: Dm, Smoke, EtOH, repetitive
- S/Sx: Pain cord → nodules w/ ↓ROM in fingers (painless)
  - Ulnar 4ths & 5th fingers only
- Dx: Clinical, early skin puckering
- Tx: restore ROM → steroid inj. (PM, ↓ nodule), padded gloves, splint/PT doesn't help
  - percut. Needle Aponeurotomy
  - Sx: advanced, fasciotomy/ectomy

Ganglion Cysts
- Mucinous fluid filled cyst over j/t/tendon sheath
- MC: dorsal wrist, 20-40w, F>M, unilocular (multi pc)
- S/Sx: swelling, smooth, round, nukeberry, +/- tender, +/- moloite / Pt. w/ cosmetic/malig. concerns
- Dx: transilluminate, NRC (for Sarco PM, 5% others)
  - Rx: rapid growth, PM @ rest, ↓ROM, atypical location
- Tx: observation (reassure, spont. in ½), needle aspiration (>½ recur w/in yr), Sx if severe Sx, Volar = more risk

Scaphoid Fracture
*Don't miss! Risk of osteonecrosis
- MC carpal Fx, 6H: direct axial compress, FOOSH (wrist hyperextension)
- Classify: distal ⅓ (pole), central ⅓ (waist) = MC/8 nuff Box, proximal ⅓ (prox. pole) distal to Listers tubercle
- S/Sx: PM @ radial wrist, +/- swelling, +/- ROM, ↓ grip strength
- Dx: Wrist XR (PA, lat, Oblique + Scaphoid), may not be visible on 1st XR
  - Snuff box tenderness → Fx until ✗'s, alignment unclear → CT/MRI
  - Bilateral wrist XR → MRI CT ASAP, radioulnar/ulnar bone Raw 12h after Fx
- Tx: non-displaced → thumb spica cast (4/8 Swelling), XR's q 2wks
- Ortho: open/displaced, neurovasc ↓, prox. pole, >3wk post injury → refer ADOT

De Quervain's tenosynovitis/tendonitis
- Abductor pollicis longus & extensor pollicis brevis tendons → overuse (? unk. etx)
- Risk: 30-50yr F, 4th child post-partum
- S/Sx: PM radial wrist ± thumb/wrist mvmt., PM w/ grip or hold object → radiate to thumb forearm, +/- swelling
- Dx: Hx, no trauma, TTP radial styloid, +Finkelstein
- Tx: Splint - thumb, NSAIDs, thumb Spica Splint, resolve in 1yr, Steroid inj. if no improvement

Carpal Boss
- Firm, fixed bony prominence @ base of 1st & 3rd metacarpal
- Sx: +/- PM, ↓ ROM
- Dx: XR (no CT)
  - DDx: Ganglion Cyst
- Tx: NSAID, Splint (neutral)
  - Sx if no relief w/ other

Trigger Finger - idiopathic
- Flexor tendon stuck in Sheath → 6-Smoothly flex/extend → Stuck beath, Snap & extend
- Risks: mid-age F, DM, RA, amyloid
- S/Sx: Painless catch/Snap
  - PM @ volar MCP, radiates → Palm & distal finger
  - Severe: Passive ext → contracture
- Dx: Hx, noted on PE, no XR
- Tx: mod. activity, Splint (3-6wk) NSAIDs, Steroid inj. if persists
  - Sx: refractory w/ severe Sx

Carpal Tunnel Synd → Compression of median nerve thru Carpal tunnel
- Risks: obesity F, DM, pregnancy, HypoThyroid, Wrist injury; Prog: 70-90% resolve/improve in 1yr
- S/Sx: PM or Paresthesia in med. nerve dist. → digits 1-3 & radial ½ 4th digit
  - Worse @ night → Shake hands to 8Sx, Wake from sleep, can radiate to forearm (B/L or U/L)
  - Intermit. Sx, ↑ w/ Wrist use, Severe = weak opening door/lid etc + muscle wasting (Advanced)
- PE: sensation of hand, forearm, upper arm, motor deficits, Tinel test, Phalen maneuver
- Dx: Clinical (Night PM, med. nerve Sx), nerve conduction study, electromyography (EMG)
- Tx: Night Wrist Splint 1st (or 2nd?), Gluco. inj or PO, PT or OT, NSAIDS NOT recommended
  - Sx: severe → Sx decompression (not 4 preggo), EMG 1st, Severe CTS pts. always need Sx

Mallet Finger
- Deformity, d/t damage to extensor tendon
- MC in young males
- Et: Contact/ball sport, occupational injury
- MOI: blow to finger tip → forced flexion of distal phalanx → damage extensor
- Tx: 3d/24 Splint DIP - 6-8wk in full exten.
- Sx: if deformity Still

Boxer's Fracture (5th met neck)
- Through neck of 5th metacarpal
- MOI: direct trauma to closed fist or dorsum of hand (NO FOOSH)
- Dx: Hx, XR - definitive
  - deformity, PM, Swelling @ dorsum to 5th metacarpal
- PE: MCP jt. depressed & knuckle shape lost (angulation)
  - eval rotation/alignment for ALL!
  - Check. NV status, eval extensor txn w/ neck Fx
- Ortho: Open or angled Fx
- Tx: Splint 4-6wk, ddx cast 1st, Ulnar gutter splint (70-90° flex hand w/ mild wrist extension)
  - RICE, PM meds
- Prognosis: ↓ extensor finger Fxn, broken skin (Fight bite & Septic arthritis/osteomyelitis), NV Status
- Et: Talk, heal on XR @ 10wk, OT? * Risk re-injury 4-6wk RUSH back

Foot & Ankle

Toe Fracture
- MOI: Stubbing or crushing toe
- S/Sx: Swell, tender, maybe deformed
- XR: find XR, displaced or not?
- Tx: Displaced → ortho, reduce?, Non-disp: buddy tape + hard shoe for 4wks, then re-XR

Lis-Franc FX - Commonly missed
- 2nd metatarsal & Lisfranc lig. - Cuneiform, Synd.
- Strain: low velocity indirect force
- FX/Dislocation: Plantar flexion/axial load - Jump over obstacle, football, MVA
- S/Sx: PM w/ torsion of Midfoot & Passive dors-Plantar flexion of foot, TTP over Tarsometatarsal jt, Major Swelling w/arm
- XR: bilat. Wt. bearing, 3 views - Displaced 1mm or > b/w base of 1st & 2nd metatarsals → unstable, +/- CT or MRI
- Tx: Early? (Wk 4-6) → or else PM forever - non-disp. = conserv., disp. = ortho. Sx OREF

Jones Fracture
- Metaphysy Seal - Diaphyseal Junction Fx of 5th metatarsal
- May → non-union (Watched Supply)
- S/Sx: TTP 5th met, ↓wt. bearing
- Tx: Refer to ortho, NWB in Cast 6-8wks, PRN screw fixation

Stress/March Fracture
- MOI: Chronic direct forces or overuse, Activity Sudden - breakdown of bone faster than body can replace
- Common in elderly woman
- S/Sx: TTP over metatarsals - commonly 2nd & 3rd
- Dx: XRs, best w/ CT
- Tx: NWB → risk vascular necrosis, Displ Fx: Posterior Splint, NWB, analgesia, ortho veterinary

Sesamoiditis/Fracture
- MOI: Chronic direct forces or overuse, Activity Sudden - breakdown of bone faster than body can replace
- Common in elderly woman
- S/Sx: TTP over metatarsals - commonly 2nd & 3rd
- Dx: XRs, best w/ CT
- Tx: NWB → risk vascular necrosis, Displ Fx: Posterior Splint, NWB, analgesia, ortho veterinary

Calcaneal Fracture → MC Fx tarsal bone
- MOI: hrg. force/axial load, intra-articular MC
- Dx: XR (lat. view) measure Boehler angle (<20°)
  - lots of Swelling, if doubt → order CT
  - * Boehler angle = highest ant. Calcaneal process & highest posterior articular surface of bone
- Tx: Displaced → immobile, elevate, analgesia, Sx
  - non-displaced → immobile, post. Splint, avoid Compartment Synd, NWB 12 wks, analgesia

Peroneal Tendinopathy
- Inflammation of peroneal tendons
- Et: acute trauma, inflam. arthropathy, repetitive motion of tendons on fibula
- S/Sx: TTP lateral ankle over tendon, ↑ w/ activity
  - better w/ rest + NSAIDs
  - PM + weak w/ resisted eversion of foot (only pronate, can't invert/supinate)
- Dx: MRI to find a tear
- Tx: NSAIDs, activity mod, brace, ins., Sx
  - Sx: fix tear, remove inflamed synovium

Bimalleolar Fracture
- Fx medial + lateral malleoli & medial ligs → Unstable
- ± talus subluxx & talofally dislocate
- XR: 3 view ± stress view
- Tx: ortho, non-displaced → cast 6-8wks NWB
  - Sx: to reduce both malleoli, ORIF

Plantar Fasciitis
- MC cause of heel PM
- S/Sx: TTP plantar aspect of heel @ origin of plantar fascia @ med. calcaneal tuberosity
  - WBST w/ first steps w/ walking
  - Worse w/ toe dorsiflexion
- XR: Spur formation @ origin - looks like a hook
- Tx: activity mod, Stretch, NSAID, PT, no run/jump, night Splint, Steroid inj. occasional caution
- Sx: Chronic or failed Conservative

Trimalleolar Fracture
- Fx medial/lateral/posterior malleoli:
  - Posterior articular surface or distal fibula UNSTABLE, associated w/ dislocation
- XR: 3 views
- Tx: ortho + often Sx. if >25% of articular surface of post. lig., fix w/ screws

Lateral Malleolus Fracture
- Fx of distal fibula
- MOI: trip, fall, twist-ankle
  - concern for chronic PM or arthritis if unfixed
- S/Sx: Swell, bruise, TTP, ↓ROM, can't bear weight
- XR: 3 views ± stress view (look @ Mortise)
- Tx: Mortise NOT widened → NWB in Cast w/ Close fix, if Mortise wide → do Sx

Lateral Ligaments
- MC MSK injury → LCL Complex
  - Ant. & PDST. talofibular ligs. + Calcaneal fibular ligament
- MOI: inversion injury
- XR: 3 views (AP, lateral, Oblique)
- S/Sx: Swell, TTP, lax on Stress exam
- PE: (+) anterior drawer
- Dx: XR
- Tx: RICE, Wt. bearing as tolerated, PT, time

Syndesmotic Injury → "High Ankle Sprain"
- MOI: External rotational force to foot → injure distal talofibular syndesmosis
- S/Sx: TTP b/t distal anterior tibia & fibula, Swelling >2cm proximal to ankle, PM squeezing tibia & fibula together @ midcalf, PM w/ external rotation of foot
- XR: 3 views + stress view (look @ Mortise)
- Tx: Mortise NOT widened → NWB in Cast w/ Close fix, if Mortise wide → do Sx
- * Maisonneuve Fx → Syndesmotic injury w/ deltoid ligament injury + fibular Fx

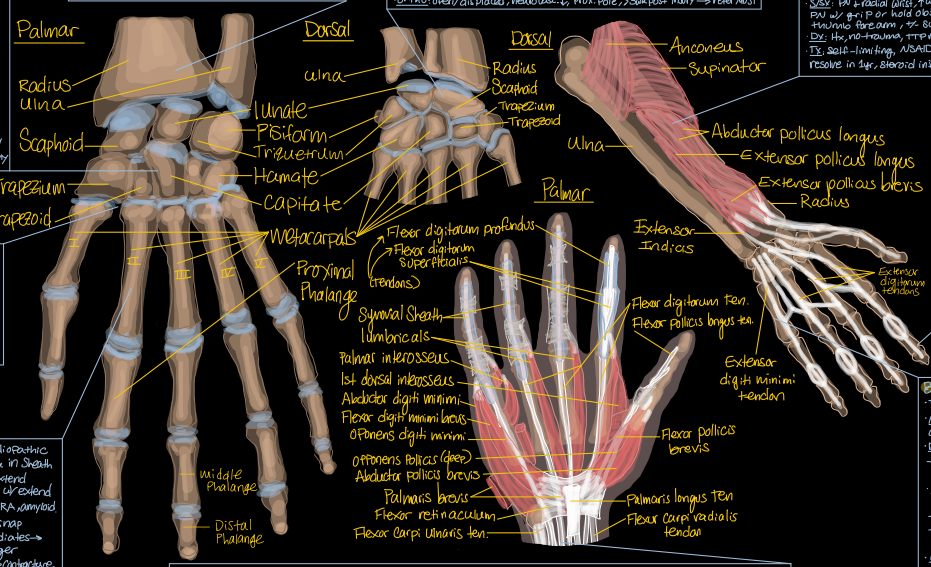
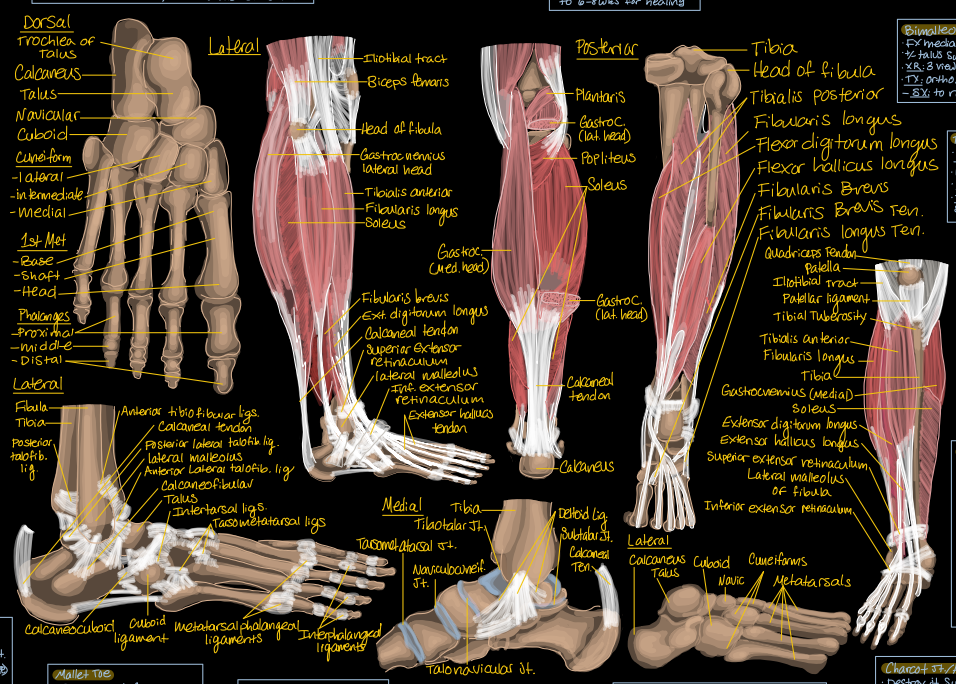
Achilles Tendon Rupture
- MOI: Sudden, forceful dorsiflexion of foot as gastroc. contracted, @ 5-6cm prox to insert.
- PE: (+) Thompson: Dx (no flexion w/ calf Squeeze)
- S/Sx: Sudden PM in calf, after pushing off, Audible Pop → immed. Weakness, Plantar flexion weak, Palpable defect (dip in calf)
- XR: Only to see if avulsion of Calcaneus
- MRI: extremely Sensitive but PE = Dx
- Tx: Early!!
  - Non-Sx: Cast for Sedentary/risk Pts.
  - Sx: for active Pts, re-rupture, not acute → Hard Cast/boot x 8wks, then removable cast w/ motion, WBAT, ROM → Cast or boot d/c 6-8wks + PT

Mallet Toe
- Flexion DIP deformity - Usually 2nd toe (Claw & fixed)
- S/Sx: PM on DIP dorsum or toe tip from Striking ground, Callus/nail deformity, Eval NV status, ankle in Plantar flex (it deformity corrects & reappears in dorsiflex = flexible)
- XR: DIP deformity
- Tx: Roomy Shoes, Pad/cushion
- Sx: release flexor digitorum longus tendon (for flexible) or Condylectomy/fusion (for rigid)

Hammer Toe
- Flexion contracture of PIP (Fixed or flexible)
  - +/- hyperextend MTP jt. & flex. deformity at DIP
- S/Sx: PM on dorsal PIP or Plantar metatarsal head
  - +/- callus over PIP (Shoes)
  - Hallux Valgus (bunions) → needs correction
- XR: ↑ arthrosis + PIP flexion
- Tx: Proper roomy Shoes, taping

Deltoid Ligament
- Eversion or external rotation force on foot
- S/Sx: TTP to medial ankle
- XR: 3 views
- Tx: RICE, immobilize Sure, PT, normally no Sx

Morton's Neuroma
- PM on plantar forefoot → worse w/ walking (tight Shoes), ↑ w/ rest
- Unk. Et., Women 10 x MC, recurs
- S/Sx: Local PM in 3rd interspace (not 1-2), ↑ w/ walking, ↓ w/ rest
  - TTP → radiates to toes
- PE: squeeze forefoot → reproduce Sx - Snap = Mulder click, XR not helpful
- Tx: wider Shoes, lower heel, metatarsal support, steroid inj.
  - Sx: if Tx fails, Sensation in toes

Charcot Jt./Arthropathy
- Destroy jt. Surface, FX w/ dislocations or 1+ jts or w/ weird PM response, DM = #1 cause
- Neuro-traumatic mechanical Strain → poor Sensory Protection + no limits → Stress FX
- Neurovascular theory → vascular recruit → osteopenia → weaken bone, glycate jt. capsule → STRAIN + mechanical stress
1. Acute Inflam. Phase: Swell, red, warm, XR: FX, dislocation - unstable, DS infxn, check for ulcers
   - Tx: immobile/elevate in NWB cast (neutral), Custom Shoes
2. Subacute Phase: Signs of healing: ↓ Swelling + warm - XR: show new bone growth, Stable
   - Tx: remove bony prominence, fuse jts → 3 g. Complication rates
3. Chronic Phase: resolve in pain, mid-foot, rocker-bottom deformity w/ collapsed arch, hindfoot + ankle

Comps: Varus + valgus → cause ulcers